APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,234	09/29/2003	Nick M. Mitchell	YOR920030485	1886

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EXAMINER
PADMANABHAN, KAVITA

ART UNIT	PAPER NUMBER
2161	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/674,234	MITCHELL, NICK M.
	Examiner	Art Unit	
	Kavita Padmanabhan	2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 June 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-13* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 October 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Status of Claims

1.   Claims 1 and 3-13 are pending.

2.   Claims 1, 12, and 13 have been amended.

3.   Claims 1 and 3-13 are rejected.

Continued Examination Under 37 CFR 1.114

4.   A request for continued examination under 37 CFR 1.114, including the fee set forth in

37 CFR 1.17(e), was filed in this application after final rejection. Since this application is

eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e)

has been timely paid, the finality of the previous Office action has been withdrawn pursuant to

37 CFR 1.114. Applicant's submission filed on 6/25/07 has been entered.

Claim Rejections - 35 USC § 102

5.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6.   **Claims 1 and 3-13** are rejected under 35 U.S.C. 102(b) as being anticipated by **Bournas**

et al. (US 6,061,679, hereinafter "Bournas").

In regards to **claim 1**, **Bournas** teaches a method of determining how a region of a data structure in an application evolves, comprising:

- periodically traversing selected subgraphs of the region in the application in order to detect data structure changes in the subgraphs while the application is running **(Bournas, col. 4, lines 45-47, 61-65, col. 7, line 66 – col. 8, line 6, col. 8, lines 39-66 – searching the data structure to determine the placement of the new key mask whenever an add request is made constitutes traversing subgraphs of a data structure periodically; Bournas, col. 8, lines 39-66 – searching the data structure to locate where to place the new key mask constitutes detecting structural changes to the subgraphs, in that wherever the key mask is to be added is located and a change is made to that particular subgraph)**;

- using these data structure changes to describe, characterize, and identify changes to the region as a whole **(Bournas, col. 7, line 66 – col. 8, line 6 – the depicted changes to the subgraphs, for example an addition, describe, characterize, and identify changes in the data structure)** and

- reporting the changes to the region to an analysis agent **(Bournas, col. 9, lines 12-13, Fig. 4b, step 430)**.

In regards to **claim 3**, **Bournas** teaches the method of claim 1 used to detect one of the following changes to a region: additions to a region; removals from a region; and internal restructuring within a region **(Bournas, col. 8, lines 5-6)**.

In regards to **claim 4**, **Bournas** teaches the method of claim 1 wherein the selected subgraphs to traverse are derived by

- computing the region key for the constituents of the data structure **(Bournas, col. 8, lines 39-66)**; and

- identifying the unique set of paths from owner proxy to change proxy as the set of traversals **(Bournas, col. 8, lines 39-66)**.

In regards to **claim 5**, **Bournas** teaches the method of claim 4 wherein the traversals are shortened by

- identifying a subpath of the path which is unlikely to change as the region evolves **(Bournas, col. 8, lines 39-66 – if receive a request to add a key mask, which would be located at a particular subpath, the other subpaths are therefor unlikely to change, since they are not the target of the change)**; and

- trimming the path to exclude the parts of the path which are unlikely to change **(Bournas, col. 8, lines 39-66 – since the subpath leading to where the change is made is traversed, the other subpaths are logically trimmed/excluded)**.

In regards to **claim 6**, **Bournas** teaches the method of claim 1 wherein determining how a region of a data structure in the application evolves is a continuous and adaptive process **(Bournas, col. 4, lines 45-47, col. 7, line 67 – col. 8, line 2)**.

In regards to **claim 7**, **Bournas** teaches the method of claim 6 wherein the process is made continuous and adaptive by

- identifying a set of desired updates **(Bournas, col. 8, lines 5-6)**; and

- adjusting the period in between traversals based on whether the desired updates have been witnessed **(Bournas, col. 7, line 66 – col. 8, line 6 – the traversals occur when a change is made)**.

In regards to **claim 8**, **Bournas** teaches the method of claim 6 wherein the process is made continuous and adaptive by

- identifying a set of desired updates **(Bournas, col. 8, lines 5-6)**; and

- adjusting the frequency of sampling any one traversal based on whether that traversal has detected desired updates **(Bournas, col. 7, line 66 – col. 8, line 6, col. 8, lines 39-66)**.

In regards to **claim 9**, **Bournas** teaches the method of claim 6 wherein the process is made continuous and adaptive by implementing one of the following procedures based on the result of performing a traversal: adding new traversals; removing existing traversals; and modifying the path of existing traversals **(Bournas, col. 8, lines 39-66)**.

In regards to **claim 10**, **Bournas** teaches the method of claim 1 further comprising updating qualitative characterizations of the regions under analysis based on structural changes to the regions as a whole **(Bournas, col. 8, lines 39-66, col. 9, lines 40-45 – updating the subgraphs based on the data structure constitutes updating qualitative characterizations)**.

In regards to **claim 11,** **Bournas** teaches the method of claim 1 further comprising updating

quantitative characterizations of the regions under analysis based on structural changes to the

regions as a whole **(Bournas, col. 8, lines 39-66, col. 9, lines 40-45 – updating the subgraphs**

based on the data structure constitutes updating quantitative characterizations as depicted

by numbers of subgraphs, keymasks, etc, which are quantitative measures).

Claims 12 and 13 are rejected with the same rationale given for claim 1.

Response to Arguments

7.   Applicant's arguments filed 6/25/07 with respect to the prior art applied to the claims

have been fully considered but they are not persuasive.

The applicant argues at page 6 of applicant's remarks that Bournas does not teach

periodically traversing selected subgraphs of the region in the application in order to detect data

structure changes in the subgraphs while the application is running, specifically because Bournas

allegedly does not teach detecting changes in a data structure or doing so while the application is

running.

The examiner respectfully disagrees and refers the applicant to the rejection above. To

clarify, the examiner asserts that searching the data structure of Bournas to locate where to place

the new key mask constitutes detecting structural changes to the subgraphs, in that wherever the

key mask is to be added is located and a change is made to that particular subgraph (Bournas,

col. 8, lines 39-66). Furthermore, the examiner asserts that Bournas teaches traversing the

subgraphs while the application is running at least in that Bournas teaches traversing the subgraphs and detecting changes *dynamically* (Bournas, col. 7, line 66 – col. 8, line 6).

The applicant argues at page 8 of applicant's remarks that Bournas does not teach locating structural changes in the subgraphs. The examiner respectfully disagrees. The examiner first asserts that this language is no longer recited in the claims. However, for the sake of clarity, the examiner asserts that searching the data structure of Bournas to locate where to place the new key mask constitutes locating structural changes to the subgraphs, in that wherever the key mask is to be added is located and a change is made to that particular subgraph (Bournas, col. 8, lines 39-66).

The applicant argues at page 9 of applicant's remarks that according to Bournas a sub-data structure 202 is denoted as 22 in Fig. 2 and that item 22 is shown as a node. The examiner is not sure what the applicant is referring to, as there does not appear to be an item 22 in Fig. 2 of Bournas or the applicant's own figures, nor in the entire disclosure of Bournas. The applicant goes on to argue, however, that a node is not a sub-graph since a sub-graph is defined to include nodes and remaining constituents. The examiner respectfully disagrees with this statement, regardless of whether it pertains to Bournas or not. The examiner asserts that a node is indeed a sub-graph. Even given applicant's characterization of a sub-graph as nodes and remaining constituents, a node having no remaining constituents would be considered a sub-graph. Applicant then argues that a subgraph is not a sub-data structure. The examiner respectfully disagrees again and asserts that a graph is a data structure and, for at least that reason, a subgraph is undoubtedly a sub-data structure.

The applicant argues at page 9 of applicant's remarks that Bournas does not teach using these structural changes to describe, characterize, and identify changes to the region as a whole. The examiner respectfully disagrees and refers the applicant to the stated rejection above. To clarify, the examiner asserts that the depicted changes to the subgraphs in Bournas, for example an addition, describe, characterize, and identify changes in the data structure, and that these do indeed pertain to a region, or an area, of the data structure (Bournas, col. 7, line 66 – col. 8, line 6).

The applicant argues at page 9 of applicant's remarks that Bournas does not teach reporting the changes to the region to an analysis agent. The examiner respectfully disagrees and asserts that Bournas does indeed teach reporting the changes to the region to an analysis agent in that reporting a duplication error to a requestor of an addition constitutes reporting changes to the region to an analysis agent (Bournas, col. 9, lines 12-13, Fig. 4b, step 430).

Conclusion

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Kavita Padmanabhan** whose telephone number is **571-272-8352**. The examiner can normally be reached on Monday-Friday, 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Apu Mofiz can be reached on 571-272-4080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

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like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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